Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1. A flameless tracer utilizing an electronic light source, for use with a projectile, comprising:

at least one G-hardened light source for emitting a light visible to an observer during a flight of the projectile; and

a power source, connected to the light source, for selectively providing electrical power to the light source when the projectile is launched.

[c2] 2. The flameless tracer of claim 1, wherein the visible light emitted by the light source comprises any one or more of:

a visible light spectrum;

an infrared spectrum; and

an ultraviolet spectrum.

[c3] 3. The flameless tracer of claim 1, wherein the light source comprises at least one light-emitting diode.

[c4] 4. The flameless tracer of claim 1, further comprising a driver circuit that is electrically connected to the power source and the light source, for providing a plurality of

pulses at different frequencies and intensities to the light source during the projectile flight.

[c5] 5. The flameless tracer of claim 1, wherein the power supply comprises a setback-activated battery.

[c6] 6. The flameless tracer of claim 5, wherein the activation of the setback-activated battery occurs as a result of a high force applied to the setback-activated battery during the projectile launch.

[c7] 7. The flameless tracer of claim 1, wherein the electronic light source comprises a plurality of miniaturized electronic light sources.

[c8] 8. The flameless tracer of claim 7, wherein the plurality of the miniaturized electronic light sources are suspended in a gelatin-like substance.

[c9] 9. The flameless tracer of claim 8, wherein the miniaturized electronic light sources are dispersed at a target upon impact, illuminating the target.

[c10] 10. The flameless tracer of claim 1, wherein the electronic light source is encased in a substance to harden the electronic light source for use in a high-force environment.

[c11] 11. The flameless tracer of claim 1, further comprising a

light-dispersing device that disperses the visible light created by the light source to enhance visibility of the projectile to the observer.

[c12] 12. The flameless tracer of claim 11, wherein the light-dispersing device comprises a protective cap.

[c13] 13. The flameless tracer of claim 11, wherein the light-dispersing device is made of any of a composite or plastic material.

[c14] 14. The flameless tracer of claim 11, wherein the light-dispersing device is made of any of a transparent or a translucent material.

[c15] 15. The flameless tracer of claim 11, wherein the light-dispersing device comprises any one or more of a reflector and a mirror.

[c16] 16. The flameless tracer of claim 11, wherein the light-dispersing device is made of any of a composite material, a plastic material, a transparent, or a translucent material, and comprises any one or more of a reflector and a mirror.

[c17] 17. The flameless tracer of claim 1, wherein the light source comprises a plurality of light sources, at least some of light sources emitting non-visible light that is

detectable by an instrument.

[c18] 18. The flameless tracer of claim 1, wherein the light source comprises a plurality of light sources, at least some of light sources emitting visible light at different wavelengths.

[c19] 19. The flameless tracer of claim 3, wherein the light-emitting diode comprises a laser diode.

[c20] 20. The flameless tracer of claim 1, wherein the projectile comprises a rear end and a side.

[c21] 21. The flameless tracer of claim 20, wherein the tracer is disposed on the rear end of the projectile.

[c22] 22. The flameless tracer of claim 20, wherein the tracer is disposed on the side of the projectile.

[c23] 23. The flameless tracer of claim 20, wherein the tracer is disposed on the rear end and the side of the projectile.

[c24] 24. A marker for use with a projectile, comprising:a light-emitting device;an energy source attached to the light-emitting device;wherein upon any of a set back, a set forward, or a spin, the energy source is activated; and wherein the light-emitting device starts emitting a tracing light upon the projectile impacting a target.

[c25] 25.The marker of claim 24, wherein upon the projectile impacting the target, the projectile shatters, allowing the light emitting device to be dispersed over the target.

[c26] 26.The marker of claim 25, wherein the light-emitting device comprises any one or more of: an LED, a laser diode, a strobe, a miniature light source, a microminiaturized light source, a photoelectric diode, a micro-eletrical-mechanical device (MEM).

[c27] 27.The marker of claim 25, wherein the light-emitting device is mixed with a sticky substance, wherein upon the projectile impacting the target, the sticky substance disperses over the target, causing the light-emitting device to adhere on the target.

[c28] 28.The marker of claim 27, wherein the sticky substance is made, at least in part, of silicone.

[c29] 29.The marker of claim 24, wherein the projectile is made at least in part, of a transparent material, allowing the light emitting device to trace a projectile flight path in addition to marking the target.

[c30] 30.The marker of claim 24, wherein the projectile is made at least in part, of a translucent material, allowing

the light emitting device to trace a projectile flight path in addition to marking the target.

[c31] 31. The marker of claim 24, wherein the light-emitting device comprises any one or more of:
a visible light spectrum;
an infrared spectrum; and
an ultraviolet spectrum.